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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/669,833	09/26/2000	Linda S. Mansfield	MSU 4.1-528	2531

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EXAMINER	
BASKAR, PADMAVATHI	

ART UNIT	PAPER NUMBER
1645	

DATE MAILED: 02/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/669,833	MANSFIELD ET AL	
	Examiner	Art Unit	
	Padmavathi v Baskar	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29 and 30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Amendment

1. Applicant's amendment filed on 10/26/04 is acknowledged.

Status of claims

2. Claims 29 and 30 have been amended.

Claims 29 and 30 are pending the application.

3. In view of the amendment to the claims, all the rejections of record are withdrawn.

4. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional application upon which priority is claimed fails to provide adequate support under 35 U.S.C. 112 for claim 30 of this application because there is no support for a microorganism containing a DNA encoding a fusion polypeptide linked to Sarcocystis neurona antigen (see rejections under 35 USC § 112, first paragraph) in the provisional application.

New Claim Rejections based on amendment

Claim Rejections 35 USC 112, second paragraph

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 29-30 are rejected under 35 USC 112, second paragraph as being vague and indefinite for the following reasons:

Claim 29, step (e) is vague for the recitation of "providing the isolated antibodies to the 16kD and 30kD" as it is not clear how to provide antibodies to the 16kD and 30kD?

Claim 30, Step (b) is vague for the recitation of "admixing the polypeptide" because it is not clear which polypeptide applicant is referring to as step (a) provides a microorganism containing a DNA encoding a fusion polypeptide linked to Sarcocystis neurona antigen ---.

Correction

7. In claim 29, step (d), recitation of (+/- 4) 16kDa and (+/- 4) 30kDa is noticed. It should be 16kDa (+/- 4) and 30kDa (+/- 4). Correction is requested.

Claim Rejections - 35 USC § 112, first paragraph

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claim 30 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant is referred to the revised guidelines on written description available at www.uspto.gov (O.G. published January 30, 2001). This is a written description rejection.

Applicant is claiming a method to produce antibodies by providing microorganism containing a DNA encoding a fusion polypeptide linked to a 16(±4) kD antigen and 30(±4) kD antigen of *S.neurona*. However, the specification fails to teach a microorganism encoding a DNA encoding a fusion polypeptide (i.e., recombinant fusion polypeptide) linked to a *S.neurona* antigen 16(±4) kD antigen and 30(±4) kD antigen.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111 (Fed. Cir. 1991), clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" Vas-Cath Inc. v. Mahurkar, 19USPQ2d at

1117. The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed."Vas-Cath Inc. v. Mahurkar, 19USPQ2d at 1116.

The claim encompasses a method for producing antibody comprising providing a microorganism DNA encoding a fusion polypeptide linked to 16(±4) kD antigen and /or 30(±4) kD antigen of *S.neurona*. Review of the present specification, the art of record, and a search of the sequence databases for polypeptide and polynucleotide sequences 16(±4) kD antigen and the 30(±4) kD antigen indicate that these sequences have not been identified nor described. Presently, in order to practice the invention as claimed the artisan must first obtain the polypeptide and/or polynucleotide sequences of the 16(±4) kD antigen and the 30(±4) kD antigen. The specification describes general methods of cloning cDNA sequences from expression libraries; however, the sequences obtained by this method are not disclosed. The specification fails to provide any detail to any of the sequences of the 16(±4) kD antigen or the 30(±4) kD antigen. The claimed invention as a whole is not adequately described if the claims require essential or critical elements which are not adequately described in the specification and which are not conventional in the art as of Applicant's effective filing date. Possession may be shown by actual reduction to practice, clear depiction of the invention in a detailed drawing, or by describing the invention with sufficient relevant identifying characteristics (as it relates to the claimed invention as a whole) such that a person skilled in the art would recognize that the inventor had possession of the claimed invention. *Pfaff v. Wells Electronics, Inc.*, 48 USPQ2d 1641, 1646 (1998). In the instant case, the claimed embodiments of the polypeptide and polynucleotide sequences needed to make and use the invention as claimed lack a written description. The specification fails to describe any polynucleotides or polypeptides encompassed in the claims with particularity to indicate that Applicants had possession of the claimed invention. The written description of a claim is evaluated on the basis of the claimed

invention as a whole. Case law established that the requirement for written description relates to the subject matter defined by the claims. *In re Wright*, 9 USPQ2d 1649 (Fed. Cir. 1989). To this end, while antibodies exist which recognize a 16(±4) kD antigen or a 30(±4) kD antigen, no specific sequence which is recognized by these antibodies is disclosed. The skilled artisan cannot envision the detailed structure of the claimed recombinant protein encoded by DNA, nor the materials necessary to practice the methods steps necessary to carry out the claimed methods of generating recombinant protein which would serve as an antigen/vaccine, and thus, conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method. Case law has established that one cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481, 1483.

The claimed invention as a whole is not adequately described if the claims require essential or critical elements which are not adequately described in the specification and which are not conventional in the art **as** of Applicants effective filing date. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016 (Fed. Cir. 1991). One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481, 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class.

10. Claim 30 is also rejected under 35 U.S.C. 112, first paragraph scope of enablement for the same reasons put forth in the above written description rejection as the specification fails to teach providing a microorganism containing a DNA encoding a fusion polypeptide linked to a Sarcocystis neurona antigen selected from the group consisting of the 16 (+/-4) kD antigen and the 30 (+/-4) kD antigen.

Claim Rejections - 35 USC 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

12. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al 1998 (Infection and Immunity; 66 (5) 1834-1838) and Marsh et al 1996 (JAVMA, 209: 1907-1913) in view of Prescott et al (AJVR 1997, 58; 356-359) and Higuchi et al 1999, Journal of veterinary medicine (46, 641-648).

Claim 29 is drawn to a method for producing an antibody for use as a passive immunity vaccine in horses against a *Sarcocystis neurona* antigen selected from the group consisting of 16 (+/-4) kD antigen and 30kD (+/-4) kD antigen, as determined by SDS polyacrylamide gel electrophoresis, comprising: providing a *Sarcocystis neurona* antigen selected from the group consisting of the 16 (+/-4) kD antigen and the 30 (+/-4) kD antigen and admixing the antigen with an adjuvant to produce an admixture to immunize a mammal to produce antibodies against antigen; removing serum from the immunized mammal and isolating from the serum the antibody and providing the isolated antibodies to the 16kD and 30 kD antigen together as the passive immunity vaccine in horses.

Liang et al 1998 teach *S.neurona* 16KD and 30KD surface antigens (see figure 1 and page 1835, right column, first paragraph, figure 3 B, SDS-PAGE) bind to antibodies, obtained from infected horses. The art also teaches antibodies to 16KD antigen neutralized merozoites (see abstract and discussion) *in vitro* assay. Liang suggests that an antibody to *S.neurona* 16KD antigen is a potential target for lysing the merozoites and thereby inhibit the merozoite attachment and penetration to host cells (see Discussion). Thus the prior art suggests antibodies to 16KD are important surface antigen of S.neurona and could be used to inhibit infection. Similarly, Marsh et al 1996 (JAVMA, 209: 1907-1913) teaches an immunodominant protein, approximately 29KD from *S.neurona* merozoites (see page 1910, left column and figure

3, SDA-PAGE). Marsh also suggests that specific antibodies to 30KD antigen would positively identify *S.neurona* infection from other infection because sera from infected horses not only contain antibodies to *S.neurona* but also antibodies to other parasitic infections and are cross reactive to 30KD antigen and thus resulted in false positive identification in western-blot analysis. Thus the teachings of Marsh et al suggested the importance of making antibodies against30KD antigen for use in specific diagnosis. The prior art does not teach a method for producing antibodies for use as a passive immunity vaccine in horses comprising providing 16kD and 30kD antigen, immunizing a mammal, isolating antibodies and providing the isolated antibodies to horses.

However, Prescott et al 1997 teach a method of producing polyclonal antibody (see page 793, left column, first paragraph) in a horse against a virulence associated protein from *R.equi* and the plasma containing antibodies were given to foals (i.e, horses) (see page 356, right column through page 357, left column under materials and methods) as passive immunity. Horses were immunized with an admixture containing *R.equi* antigen and adjuvant (aluminum hydroxide). Hyperimmune plasma (i.e., antibodies) was recovered (i.e., isolated) from the animal after immunization and plasma was inoculated to foals (i.e., providing passive immunity vaccine) against experimental (see page 357, left column under passive immunization of foals) infection. Higuchi et al 1999 teach a method of producing polyclonal antibody (see page 642, under materials and methods) in a horse against a virulent *R.equi* for use in a passive immunity vaccine and provides the antibody to foals (i.e, horses) (see page 356, right column through page 357, left column under materials and methods). Horses were immunized with an admixture containing *R.equi* and L1 by repeated immunizations. Hyperimmune plasma was harvested (isolated) from blood for providing passive immunization of foals (see page 642, under field trials).

Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use 16KD and 30 KD surface antigens of *S.neurona* as taught by Liang and Marsh et al in a method for producing polyclonal antibodies against parasite (R.equi) surface antigens for providing passive immunity in horses against infection by inoculating hyperimmune plasma to foals/horses as taught by Prescott et al and Higuchi et al with a reasonable expectation of success because it would help to obtain specific *S.neurona* antibodies to 16kD and 30kd surface antigens that could be used for diagnosis or treatment of S.neurona infection in horses. One of ordinary skill in the art would have been motivated to produce the instant invention for the expected benefit of overcoming or avoiding the problem of false positive results with 30kd antigen in diagnosing specific *S.neurona* infection from other parasitic infections by using specific antibodies to 30kD *S.neurona* antigen as suggested by Marsh et al and use specific 16KD antibodies for inhibiting the merozoite infection in horses for passive immunity because Liang et al suggests that protective humoral immunity to *S.neurona* infection is important by neutralizing the merozoite ability to infect horses especially with surface antigens such as 16kD because Prescott et al and Higuchi et al provided that horses can be treated with polyclonal antibodies (i.e., passive immunity vaccine) to parasite surface antigens to inhibit infection caused by parasite, *R.equi*. Thus, the claimed invention is prima facie obvious over Liang et al and Marsh et al in view of Prescott et al and Higuchi et al absent any convincing evidence to the contrary.

13. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al 1998 (Infection and Immunity; 66 (5) 1834-1838) and Marsh et al 1996 (JAVMA, 209: 1907-1913) in view of Dame et al (U.S.Patent 6, 808, 714), Prescott et al (AJVR 1997, 58; 356-359) and Higuchi et al 1999, Journal of veterinary medicine (46, 641-648) and further in view of Barton et al 1998 (AJVR, 59 (6) 792-7.

Please note claim 30 is rejected for lack of written description and scope of enablement for a microorganism containing a DNA encoding a fusion polypeptide. However, claim 30 is interpreted as stated below and accordingly the art is applied in order to advance the prosecution.

Claim 30 is drawn to a method for producing a monoclonal antibody for use as a passive immunity vaccine in horses against a *Sarcocystis neurona* antigen selected from the group consisting of a 16 (+/-4) kD antigen and a 30 (+/-4) kD antigen, as determined SDS polyacrylamide gel electrophoresis, comprising: providing a fusion polypeptide linked to a *Sarcocystis neurona* antigen selected from the group consisting of the 16 (+/-4) kD antigen and the 30 (+/-4) kD antigen; admixing the polypeptide with an adjuvant to produce admixture; inoculating mice with the admixture to produce antibodies against antigen; removing the spleens from the mice which produce the antibodies against the antigen; removing spleen cells from the spleens and mixing the spleen cells from the spleens with mouse myeloma cells to produce a mixture of fused cells consisting of spleen cells fused to myeloma cells, the spleen cells, and the myeloma cells; selecting the fused cells on cell culture medium in which the fused cells can grow but which the spleen cells and the myeloma cells cannot grow; and screening the fused cells for fused cells which produce the monoclonal antibody against the *Sarcocystis neurona* antigen selected from the group consisting of the 16 (+/-4) kD antigen and the 30 (+/-4) kD antigen to produce the monoclonal antibody, and providing said antibodies as a mixture together as the passive immunity vaccine in horses.

Liang et al and Marsh et al teach 16kD and 30kD antigens of *S.neurona* are important for inhibiting infection in an *in vitro* method of neutralization and for positively identifying *S.neurona* infection from other parasitic infection respectively as discussed above in Paragraph # 12. The prior art does not teach using fusion polypeptide to immunize mice for obtaining mouse monoclonal antibodies and providing said monoclonal antibodies to horses as passive immunity.

However, Dame et al (U.S.Patent 6, 808, 714) teach fusion polypeptide 29kD antigen (see column 31, lines 16-26) linked to His tag could be used for making monoclonal antibodies (columns 12-13), Prescott et al and Higuchi et al teach a method of passive immunity in horses using specific antibodies to parasite antigens as discussed above in Paragraph # 12. Barton et al's teachings provide that the heterologous antibody such as mouse monoclonal antibodies raised against horse (see page 793, left column, fifth paragraph) antigen (i.e., equine TNF) could be used in a passive immunity in horses for treating endotoxemia.

Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use 16KD, 30 KD and fusion polypeptide of *S.neurona* as taught by Liang, Marsh and Dame et al respectively et al in a method for producing monoclonal antibodies as taught by Dame et al and Barton et al for providing said antibodies as passive immunity in horses against infection as taught by Prescott et al and Higuchi et al by inoculating said heterologous monoclonal antibodies to foals/horses as taught by Barton et al with a reasonable expectation of success because it would help to obtain specific *S.neurona* antibodies to 16kD and 30kd surface antigens that could be used for diagnosis or treatment of *S.neurona* infection in horses . One of ordinary skill in the art would have been motivated to produce the instant invention for the expected benefit of overcoming or avoiding the problem of false positive results with 30kD antigen in diagnosing specific *S.neurona* infection from other parasitic infections by using specific antibodies to 30kD *S.neurona* antigen as suggested by Marsh et al and use specific 16KD antibodies for inhibiting the merozoite infection in horses for passive immunity as Liang et al suggests that protective humoral immunity to *S.neurona* infection is important by neutralizing the merozoite ability to infect horses especially with antibodies to surface antigens and Prescott et al and Higuchi et al provided that horses can be treated with antibodies (i.e., passive immunity vaccine) for inhibiting infection caused by parasite, *R.equi* and Barton et al showed that heterologous (mice) equine specific monoclonal antibodies could be used for treatment. Thus, the claimed invention is prima facie obvious over Liang et al, Marsh et al and Dame et al in view of Prescott et al and Higuchi et al and further in view of Barton et al absent any convincing evidence to the contrary.

13. Applicant submitted a draft paper by the inventors to show monoclonal antibodies were effective in a mouse model. The Examiner carefully reviewed the unpublished manuscript (no page numbers) and noted that the source and nature of the monoclonal antibodies are not yet

known to the authors (see under monoclonal antibodies, page 4 as per examiner's counting). Further, applicant is not a method of treatment using antibodies but claiming a method of producing antibodies.

Remarks

14. Claims 29-30 are rejected.

Relevant Prior Art

15. The prior art made of record and not relied upon in any of the rejections is considered pertinent to Applicants' disclosure:

Knowles, Jr et al 1991(Infection and Immunity 1991, 59, 2412-2417) teach a method of producing monoclonal antibody (page 2413, left column, under production of Mab) to 44 kD, 36 kD, 34 kD and 28kD merozoite surface antigens. Mice were immunized with viable merozoites of *B.equi* in Freund's complete adjuvant. The teachings of the prior art provide that cell fusion and cloning experiments to obtain specific monoclonal antibodies by screening clones using *B.equi* (page 2413-right column). Monoclonal antibody36/133.97 binds to different proteins indicating the conserved epitope among different proteins and suggests that this could provide a strategy for development of immunoprophylaxis or indicate potential for use in diagnosis.

Becu et al 1997, Veterinary Microbiology (56, 193-204) teach a method of producing polyclonal antibody in mares (female horse) against a virulent associated protein of R.equi (R.equi vaccine) for use in a passive immunity vaccine and provides the antibody to foals (i.e, young horses) (see page 196, under Immunization of mares and administration of plasma to foal). Mares were immunized with an admixture containing R.equi vaccine by repeated immunizations. Hyperimmune plasma was separated (isolated) from blood cells to provide passive immunization of foals (page196, under field trial 3).

Bonnin et al Infect Immun. 1991 May; 59 (5): 1703–1708 teach method of making monoclonal antibodies (MAbs) against purified excysted oocysts and sporozoites of Cryptosporidium parvum reacted in an immunofluorescence assay with antigens located at the anterior pole of the mezoites. On Western blots of purified oocysts, these MAbs reacted with a series of bands between 210 kD and 40 kD; several of these bands were recognized by both Mabs.

Letscher-Bru et al Infect Immun. 1998 Sep; 66(9): 4503-6 teach a method of producing antibodies by inoculating mice with recombinant *Toxoplasma gondii* surface antigen 1 (rSAG1) 30KD protein, alone or combined with interleukin-12 (IL-12) as an adjuvant in CBA/J mice (CERJ). RSAG1 protein expressed in *E. coli*. Mice were immunized twice a week for 2 weeks (days 1, 4, 8, and 13) with rSAG1 alone (cumulative dose, 4 µg) or with rSAG1 plus IL-12 (cumulative dose, 4 µg of each) and monoclonal antibodies were obtained.

Mora et al (Infect Immun. 1992 Aug; 60(8): 3442-5) teach a method of making antibodies by inoculating rabbits (mammal) with *C. parvum* oocysts resuspended in complete Freund's adjuvant. Animals were bled and serum was obtained from immunized animals (page 3442, right column through page 3443, left column). The serum antibodies are isolated on an immunoblot using C.parvum (figure 2) antigen.

Avarzed et al Journal of Clinical Microbiology, July 1998, p. 1835-1839, Vol. 36, No. 7 teach a method of producing MAb against *B. equi* to characterize the location of the protein for detecting the effect on parasite growth in vitro and to examine the potential application of species-specific protein of *B. equi* as an antigen in a serodiagnostic method (page 1835, right column through page 1836, under Materials and Methods; see Production and purification of Mabs).

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP ' 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

17. Papers related to this application may be submitted to Group 1600, AU 1645 by facsimile transmission. Papers should be transmitted via the PTO Fax Center, which receives

transmissions 24 hours a day and 7 days a week. The transmission of such papers by facsimile must conform to the notice published in the Official Gazette, 1096 OG 30, November 15, 1989. The RightFax number is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PMR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PMR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PMR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Padma Baskar Ph.D., whose telephone number is ((571) 272-0853. A message may be left on the Examiner's voice mail system. The Examiner can normally be reached on Monday to Friday from 6.30 a.m. to 4.00 p.m. except First Friday of each bi-week.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynette Smith can be reached on (571) 272-0864. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1600.

Respectfully,

PB

Padma Baskar Ph.D.

LFS

LYNETTE R. F. SMITH
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